

# Tinytalk II

The name 'TINYTALK II' covers a range of miniature light-weight, dataloggers used to aid the collection of data. The range offers many features including :

- Reading capacity
- Logging intervals of 1 second to 4.5 hours
- Programmable delayed start
- Stop options
- Non Volatile memory
- Various case / sensor options
- Manufactured to BS EN ISO9002
- Complies with EN 50082 Pt1 1992

## TECHNICAL INFORMATION

Unit Size :	35mm - 34mm dia x 52mm long	IP68 - 78mm x 50mm x 34mm
Weight : 35mm	» 30 g + Probe	IP68 » 120g to 160g

### Operating environment (EMC) :

The operating environment for Tinytalk II is taken to be as defined in EN50081 pt1 : 1992 and EN50082 pt1 : 1992.

TINYTALK II complies with EMC generic immunity standard EN50082 pt1 : 1992 with leads supplied. User-supplied leads and sensors may affect this compliance.

**Note :** Please read this manual, in conjunction with the OTLM Software manual before using your TINYTALK II data logger.

## FEATURES

### Readings :

TINYTALK II stores the 1800 data readings, along with related information such as the logging interval and description/title, together with details of the individual logger including the unique serial number.

### Delay Start :

The logger may be programmed to delay the start of the logging cycle by up to 45 days. The delay can be set as relative or actual time and will have full time / date retention.

### Exporting Data :

Data may be exported from the host software in text formats suitable for importation into spreadsheet programmes. Data exported in this manner will include the header information (i.e. title/description) etc.

### User Specified Logging Intervals :

Logging interval is user specified in multiples of 1 second up to a maximum of 4.5 hours.

### Stop Options :

TINYTALK II may be set to stop logging in one of three ways:

- i) Never (wraparound). In this mode the logger continues to record, over-writing oldest data first once full.
- ii) When full
- iii) After taking a specified number of readings

### Status Indicator (Green LED):

Trigger Start	4 flashes every 4 sec	(if available)
Delay start	2 flashes every 4 sec	
Logging	1 flash every 3 sec	
Reading	1 bright flash	
Power Up	ON for several seconds	

### MANAGING SOFTWARE (OTLM)

Logging is started (launched) and the data retrieved (off-loaded) by means of the management software (OTLM) which is run on a Windows<sup>TM</sup> based host computer.

In order for TINYTALK II units to communicate with the host computer, the correct interface cable is required for connection between a spare serial port of the computer and your TINYTALK II data logger. Should any difficulty be experienced in communicating with the unit, firstly check the cable is properly connected to the correct serial port. If this is not successful, provided that the unit is not logging (or data will be lost), remove the battery for a few seconds (35mm versions only). Please refer to the OTLM software manual for further details.

### BATTERY

Size :	3.6v 1/2 AA size Lithium
Type :	Sonnenschein SL-750 or Tadiran TL-2150/S or Saft LS-3 / LS 14250 or other suitable alternatives.

### Changing :

Always stop the unit logging before changing the battery. Check that the replacement is aligned with markings on battery holder. The green LED will light for a few seconds. If it does not, remove the battery and try again.

### Disposal :

The lithium battery should be disposed of to local regulations. It should NOT be charged, short circuited, heated above 75°C, incinerated or disassembled.

### BATTERY LIFE :

Typically 2 years, although this may be reduced to as little as 6 months with extreme use (very short logging intervals).

To maximise: Do not leave TINYTALK II connected to the host computer for long periods.  
Use the largest reading interval possible.

### TINYTALK II Operating temperatures :

TINYTALK II loggers are designed to operate over a temperature range of -40°C to +75°C.

This range may be limited on specific types of logger.

**Note :** See also battery warning.

**CARE OF UNITS - 35mm case**

Do not allow the TINYTALK II electronics to become wet. Moisture will cause the unit to stop recording and can lead to corrosion.

Should it become wet, remove the battery immediately, wash the unit in fresh water and dry thoroughly before re-installing the battery.

Where a unit is to be used in an area below room temperature, place a silica gel pack inside the case and ensure the canister top is fitted.

Where a TINYTALK II has been used in cold conditions, allow the unit to warm to room temperature prior to opening to avoid condensation forming.

To remove the unit from its container, gently squeeze the sides of the canister. Care should be taken when handling the unit once out of the container, since it may be damaged by static electricity.

**CARE OF UNIT - IP68**

The IP68 waterproof rating is only valid to 50ft (15 meters), and only when the connector cap and probe are securely fitted to the connectors.

Care must be taken to ensure that no dirt or moisture gets into the connector.

When replacing the battery ( see page 7 for suitable alternatives ), it is recommended that the O-ring lid seal is also replaced.

As with the 35mm case, allow the unit to warm to room temperature prior to opening to avoid condensation forming.

Both batteries and O-rings are available, either from you local TINYTALK II stockist or direct from Gemini Data loggers.

## TINYTALK II - TEMP LOGGERS

TINYTALK II Sensor ranges :

All TINYTALK II Temp loggers use 10K NTC Thermistors. Ranges available are :

Range G -40 °C to +75 °C (Internal sensor)

However this range can be extended by use of external sensors.

-40 °C to +125 °C (External sensor)

Range F -30 °C to +30 °C

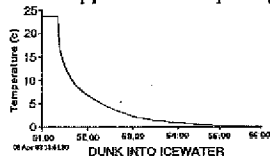
Range E -10 °C to +40 °C

Note : Special temperature ranges may be available in quantity.

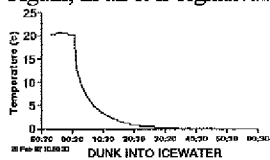
### Thermal Time-constants

(TINYTALK II - TEMP with integral sensors.)

**35mm version** : As shown below the time constant is around 5 minutes in water, although significantly longer in air. Leaving the top off (which may be done in clean, dry environments) will help to reduce this. Applications requiring a shorter time constant may need the thermistor to be mounted externally.



**IP68 version** : The time constant in water is shorter than for the 35mm version at approx 1.5 minutes. Again, in air it is significantly longer.



**Overall Accuracy :**

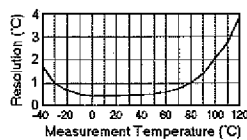
Thermistor accuracy + Logger resolution.

Thermistor accuracy :

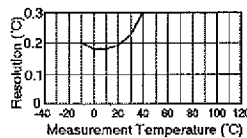
From : 0 ° to 70 °C    +/- 0.2 °C.  
From : 0 ° to -40 °C    increaseing to +/- 0.4 °C.  
From : 80 ° to 120 °C    increaseing to +/- 0.6 °C.

**Logger resolution :**

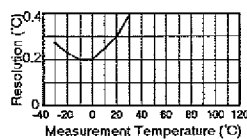
General :        -40 °C to +75 °C (+125 °C with external sensor).



Environmental : -10 °C to +40 °C



Frozen Food :    - 30 °C to + 30 °C

**Note : Degradation in performance**

Some degradation in accuracy of the logged variable may occur if the unit is subject to RF electromagnetic disturbances (as per EMC generic immunity standard EN50082 pt1:1992)

## TINYTALK II - PT 100 LOGGER

### TINYTALK II Operating temperature :

TINYTALK II PT 100 loggers are designed to operate over a temperature range of 0°C to +75°C. (The unit may not work properly if operated outside of this range). See also battery warning.

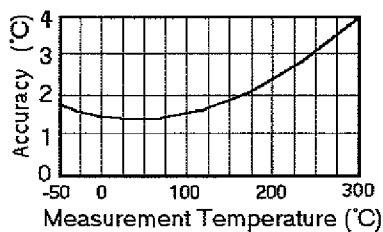
### TINYTALK II Sensor range :

The standard range for TINYTALK II PT 100 is -50°C to +300°C. It is always supplied with a probe. This temperature is the maximum to which the tip of the probe may be exposed. High temperatures at the back of the probe may cause damage to the sleeving and reduce accuracy.

### Time constants :

The time constant (90% response) for the PT-100 probe is approximately 10 seconds in water and 120 seconds in air

### Temperature Accuracy :



### Note :

Graph shows combined accuracy and resolution for PT-100 units.

Degradation in performance :

Some degradation in accuracy of the logged variable may occur when the unit is subjected to RF electromagnetic disturbances (as per EMC generic immunity standard EN50082 pt1:1992).

## **TINYTALK II - RH LOGGER**

### **Operating Range :**

35mm version 0 - 90% RH

IP68 version 0 - 95% RH

**Note :** Operating temperature range of the whole unit is restricted to a range of 0°C to +60°C in a non condensing atmosphere.

### **Accuracy and temperature considerations :**

Both versions are accurate to 4% at 20°C with a temperature coefficient of -0.2% RH/°C.

### **Response time :**

Both versions have a response time of 120 seconds (for 90% FS) The sensor can work with very little air movement, although this will increase the response time.

### **The RH Sensor :**

The sensor is necessarily exposed and therefore care must be taken not to cause damage. It may be gently cleaned in de-ionised water but care must be taken not to leave any conductive residue on the sensor.

After washing the sensor, it should be allowed to dry for at least 48 hours in a warm, dry room.

### **Sensor resistance :**

The sensor will resist chemical corrosion by small amounts of the following vapours:

Chlorine Acetone

Xylene

Formaldehyde

Freon

Hospital Germicide

Ammonia

**Note :** For high humidity or applications with significant temperature changes, the IP68 version is strongly recommended.

## TINYTALK II - VOLT LOGGER

### Selecting Volt I/P Ranges :

TINYTALK II - Volt is factory set with a range of 0 to 2500mV. Ranges of 10V and 25V can be selected on the internal switch but TINYTALK II differs from the original in that Re-educator software is needed to change the range.

### Hardware connector wiring :

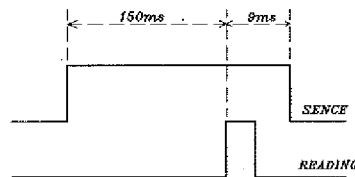
Name	Colour	35mm	IP68
Sense	White	Tip	C
Input	Yellow	Ring	E
Ground	Black	Outer	D
2.5V ref	Red	N/A	A

### Line details :

2.5 V ref. (Red) - IP68 only : (FSD for 2.5V range) reference signal during reading. The Maximum load that can be applied is 20K.

**Ground (Black) :** Logger ground. All measured voltages will be relative to this.

**Sense (White) :** The Sense line is a trigger signal which can be used to switch power to external circuitry during a reading. Sense goes high (3.5V), 150ms before the A/D takes a reading. A 100K resistor is fitted in series with the sense line to protect it from overload.



**Input (Yellow) :** This is the (dc) input voltage to be measured.

**Note :** The applied voltage (relative to TINYTALK II ground connection) must be no less than 0V or greater than 3.5, 14 or 35V for the 2.5, 10 and 25V ranges respectively.

Voltages outside of these ranges may permanently damage the unit.

If 'input' is left unconnected on the 2.5V range, the input will float. On the other ranges it will pull down to 0V.

### Accuracy :

The accuracy of the TINYTALK II - VOLT depends on the input voltage range.

Voltage	Accuracy
0V - 2.5V	$\pm 10\text{mV} \pm 0.5\%$ reading
0V - 10V	$\pm 40\text{mV} \pm 1\%$ reading
0V - 25V	$\pm 100\text{mV} \pm 1\%$ reading

### Impedance :

Input impedance for each range is

Voltage	Input characteristics
0V - 2.5V	$\pm 0.4\text{ mA}$ leakage
0V - 10V	400KW
0V - 25V	1MW



## RE EDUCATOR SOFTWARE

The re-educator software runs in the Windows environment and allows the replacement of :

- Data conversion tables

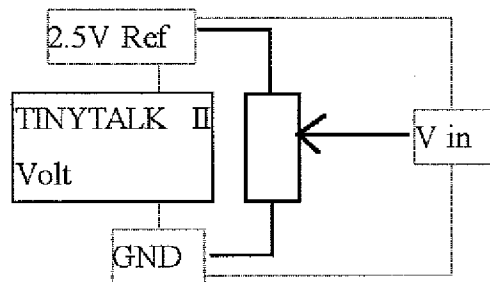
- Property names and units

- Overall logger name

It does not allow the replacement of serial numbers or modification of existing data. For further details see the Re-educator manual

### Application Note ( IP-68 only)

Measuring displacement using potentiometer transducer and TINYTALK II - Volt.



Pot is typically 100K ( min 20K ).

All Tinytalk II are manufactured within the Orion Group to :

ISO EN 9002 part 2. (Cert No 6134)



All Tinytalk II conform to :



EN 50081 pt1:1992

EN 50082 pt1:1992

### WARRANTY

TINYTALK II units carry a manufacturing defects warranty of 12 months from the date of purchase.

Units returned under warranty will be repaired or replaced at the manufacturers' discretion. This warranty does not cover mishandling, modification or battery replacement and is subject to the standard Terms and Conditions of Sale, a copy of which is available upon request.

Note : Claims under warranty should be referred to the point of sale.